FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

November 11 to November 17, 2012 (Week 46)

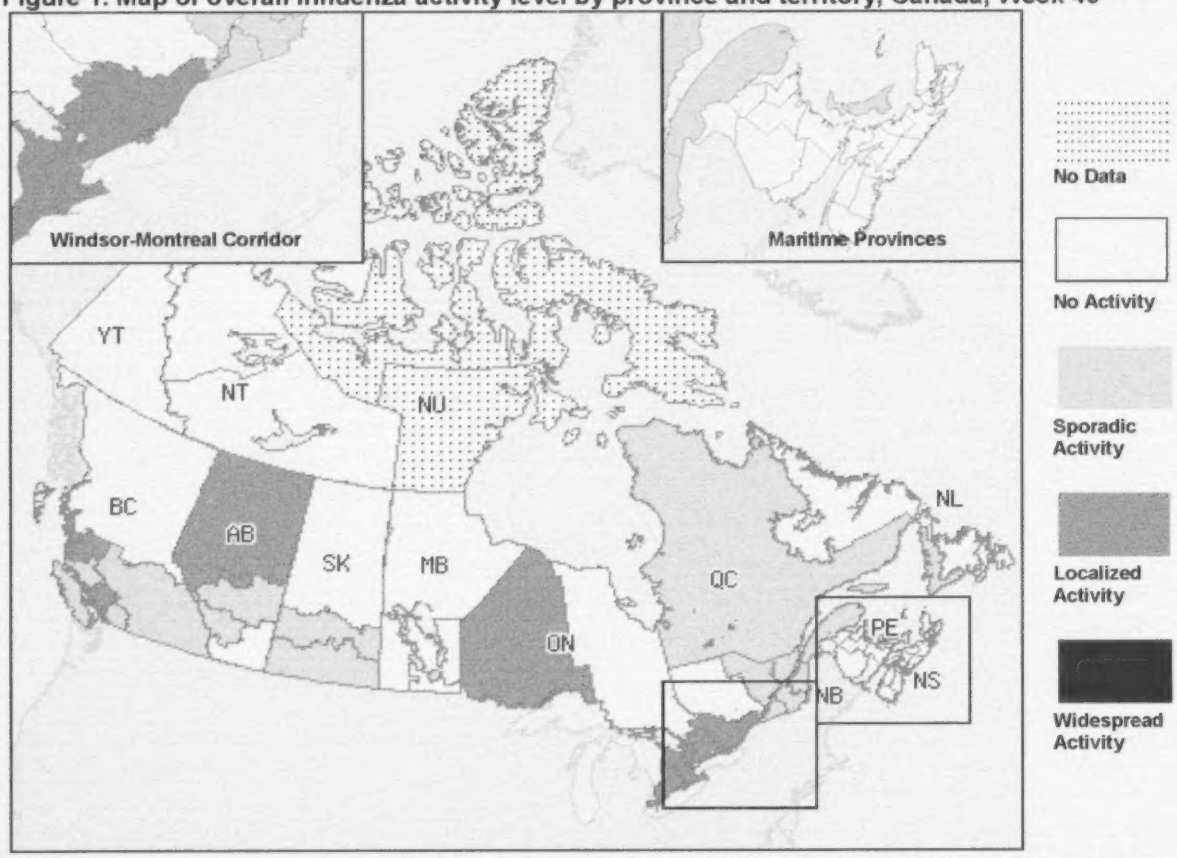
Overall Influenza Summary

- Influenza activity in Canada increased compared to the previous week with more regions reporting sporadic and localized activity.
- In week 46, a total of 151 laboratory detections of influenza were reported, of which 93.4% were for influenza A viruses, predominantly A(H3N2).
- Nine influenza outbreaks were reported in week 46: 6 in long-term care facilities and 3 in other settings.
- Three paediatric influenza-associated hospitalizations were reported this week through the IMPACT network, and 15 cases in adults ≥20 years of age were reported through Aggregate surveillance.
- The ILI consultation rate increased compared to the previous week but remains within the expected range for this time of year.

Influenza Activity (geographic spread) and Outbreaks

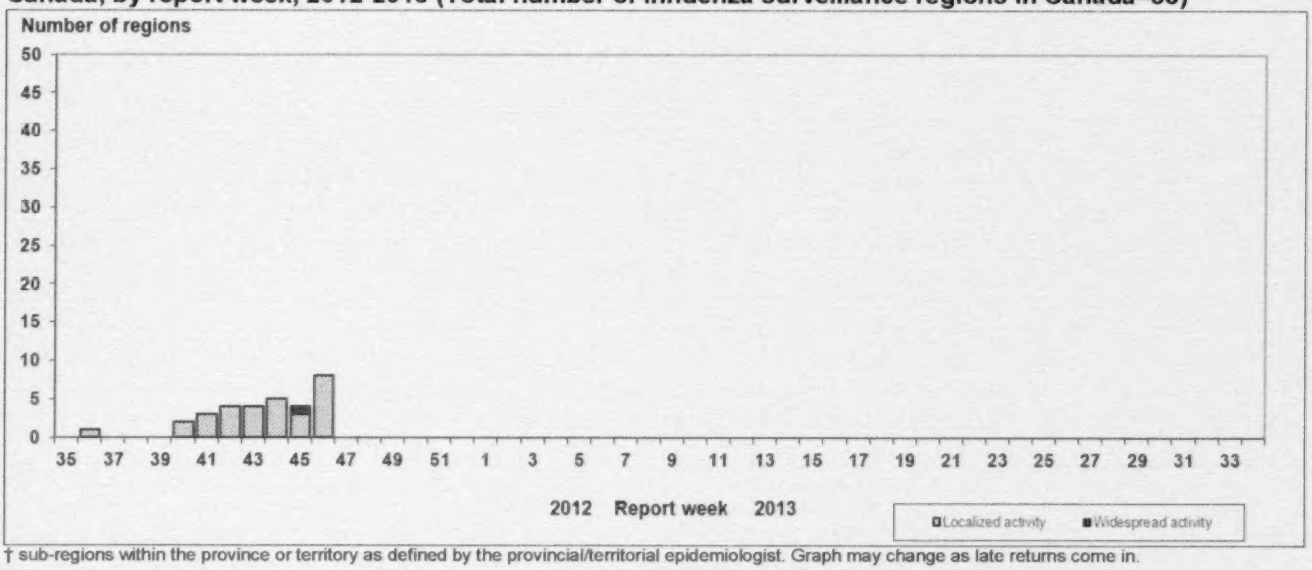
In week 46, 8 regions [in BC(1), AB(2) and ON(5)] reported localized activity, 16 regions [in BC(3), AB(2), SK(2), MB(1), ON(1), QC(5), PE(1) and NL(1)] reported sporadic activity and the rest reported no activity. No report was received from Nunavut (Figures 1 and 2). Nine new influenza outbreaks were reported in week 46: 6 in long-term care facilities [in BC(1), AB(1) and ON(4)] and 3 in other settings [in AB(1) and ON(2)] (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 46



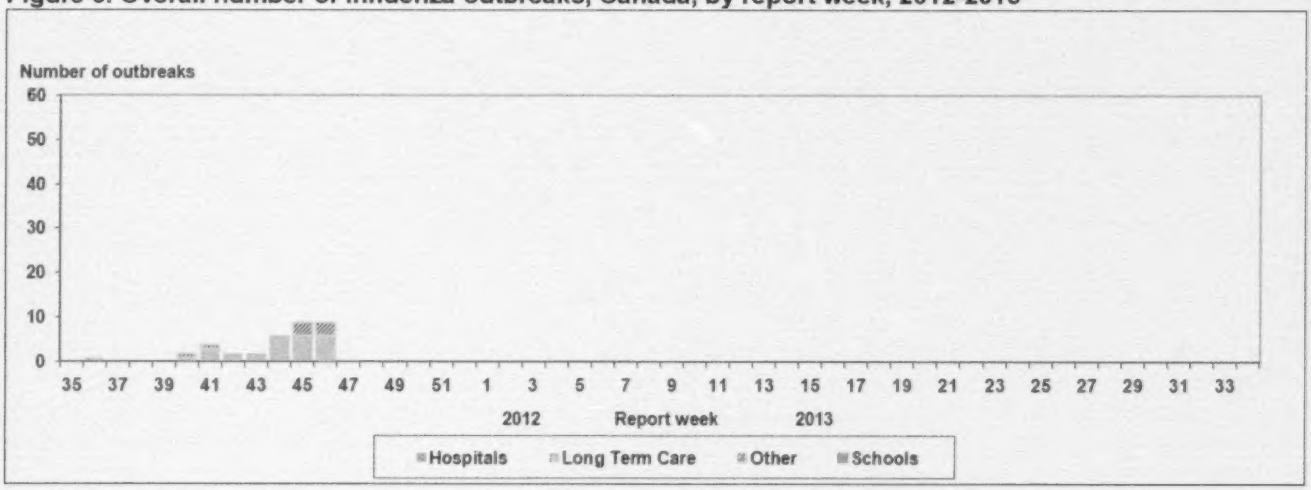
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests increased from the previous week, from 4.5% in week 45 to 6.0% in week 46 (Figures 4 and 5). Among the influenza viruses detected this week (n=151), 93.4% were positive for influenza A viruses [of which 60.3% were A(H3), 3.5% were A(H1N1)pdm09, and 36.2% were A unsubtyped] and 6.6% for influenza B viruses (Table 1).

Cumulative influenza virus detections by type/subtype to date are as follows: 92.6% influenza A [64.3% A(H3), 5.0% A(H1N1)pdm09 and 30.7% A(unsubtyped)] and 7.4% influenza B (Table 1).

Detailed information on age and type/subtype was received for 369 cases to date this season (Table 2).The proportions of cases by age group were as follows: 16.0% were < 5 years; 10.8% were between 5-19 years; 16.0% were between 20-44 years; 18.2% were between 45-64 years of age; 39.0% were ≥ 65 years.

The percentage positive for rhinovirus detections decreased from the previous week, from 17.6% in week 45 to 15.1% week 46, but remains the highest compared to the other respiratory viruses. The percentage positive for RSV (5.3%), parainfluenza (5.1%) and coronavirus (3.5%) detections increased slightly compared to the previous week, while other percentages remained low: adenovirus 1.7%; hMPV 0.6% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	November 11 to November 17, 2012						Cumulative (August 26, 2012 to November 17, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	13	0	13	0	0	2	23	0	20	0	3	6
AB	27	0	18	2	7	5	126	0	98	11	17	8
SK	7	0	6	0	1	0	11	0	7	0	4	1
MB	2	0	2	0	0	0	9	0	8	0	1	1
ON	56	0	45	3	8	2	149	0	114	8	27	8
QC	33	0	0	0	33	1	74	0	6	0	68	8
NB	1	0	0	0	1	0	2	0	0	1	1	0
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	1	0	1	0	0	0	1	0	1	0	0	0
NL	1	0	0	0	1	0	3	0	2	0	1	0
Canada	**141**	**0**	**85**	**5**	**51**	**10**	**398**	**0**	**256**	**20**	**122**	**32**

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (November 11 to November 17, 2012)					Cumulative (Aug. 26, 2012 to November 17, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	18	1	9	8	0	54	4	34	16	5
5-19	9	0	6	3	2	36	0	29	7	4
20-44	16	0	13	3	0	57	6	38	13	2
45-64	11	2	4	5	4	56	4	37	15	11
65+	24	1	12	11	0	141	3	93	45	3
Unknown	1	0	1	0	0	1	0	1	0	0
Total	**79**	**4**	**45**	**30**	**6**	**345**	**17**	**232**	**96**	**25**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

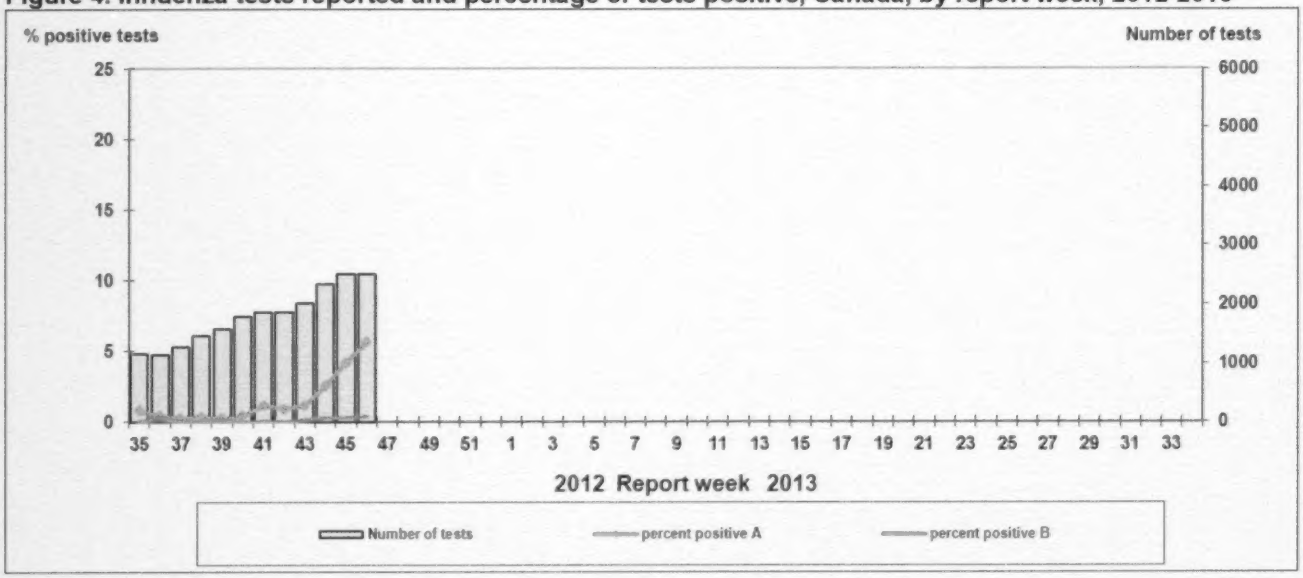
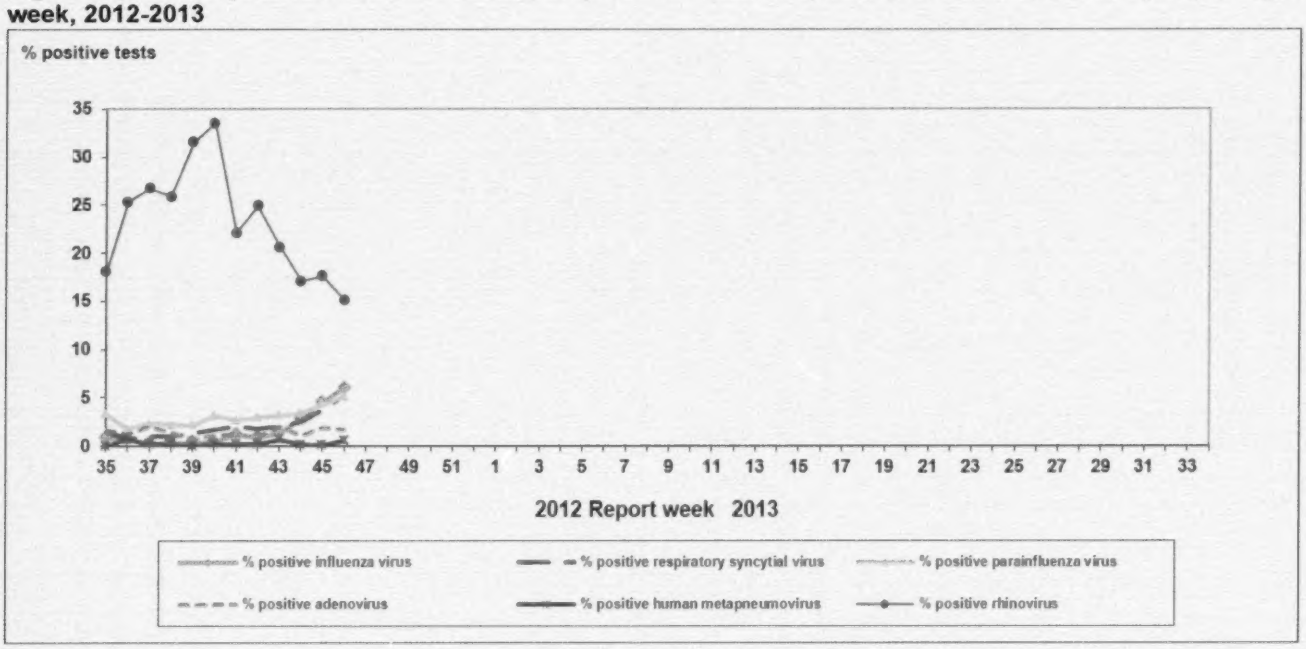


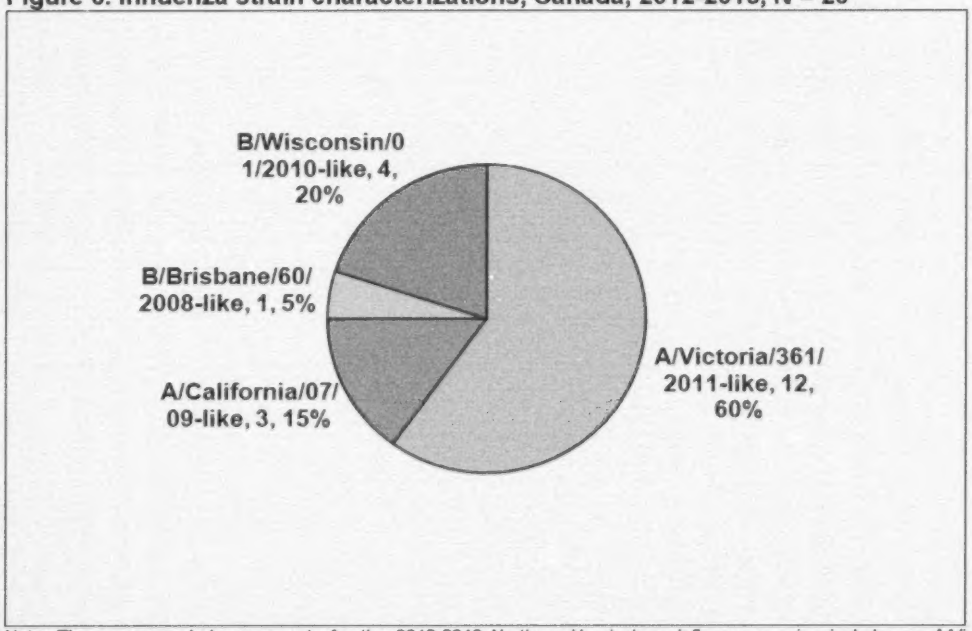
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 20 influenza viruses [12 A(H3N2), 3 A(H1N1)pdm09 , and 5 influenza B]. The 12 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011. The 3 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 4 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and one was similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 20



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

Since the beginning of the season, NML has tested 20 influenza viruses [12 A(H3N2), 3 A(H1N1)pdm09 and 5 B] for resistance to oseltamivir and zanamivir and it was found that all were sensitive to oseltamivir and zanamivir. A total of 36 influenza A [35 A(H3N2) and 1 A(H1N1)pdm09] viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

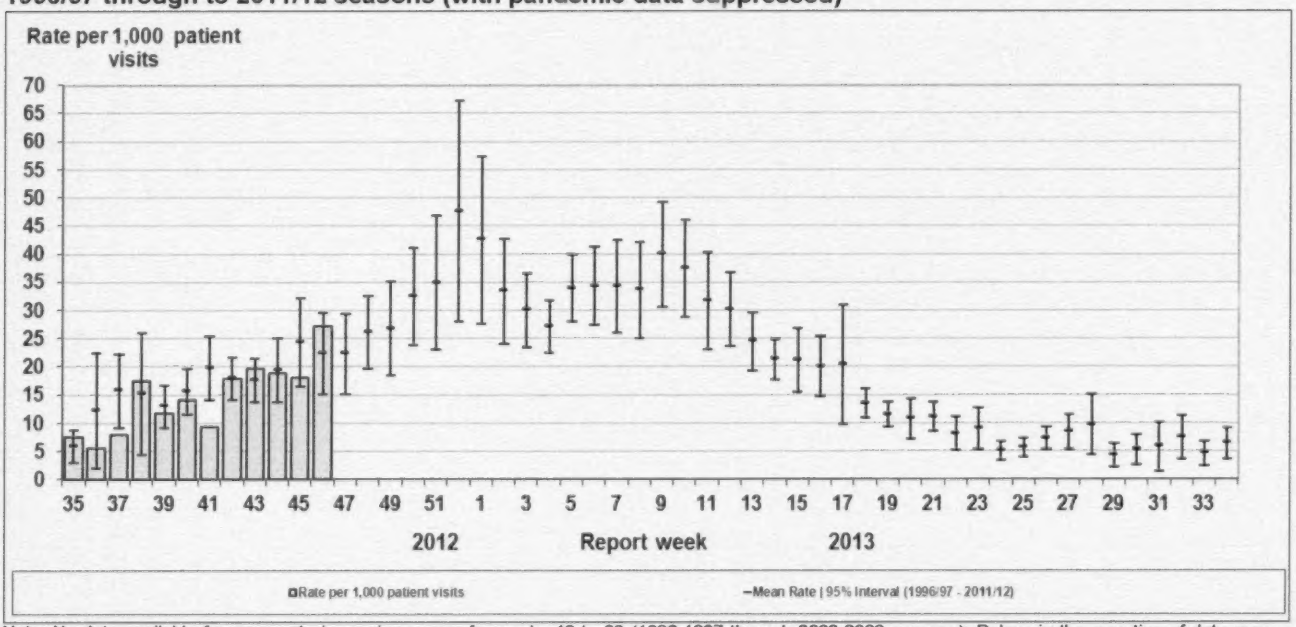
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	12	0	12	0	35	35 (100%)
A (H1N1)	3	0	3	0	1	1
B	5	0	5	0	NA*	NA*
TOTAL	20	0	20	0	36	36 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate in week 46 increased from the previous week from 18.0 to 27.2 ILI consultations per 1,000 patient visits; but remains within the expected levels for this time of year (Figure 7). The highest consultation rates were observed in children 5-19 years of age (79.2/1,000) followed by children <5 years of age (67.2/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate has been increasing gradually since early October, 2012, from a rate of 10.3 antiviral prescriptions per 100,000 new prescriptions dispensed in week 41 to 17.2/100,000 in week 46. Based on retrospective data available since April 2011, antiviral prescription rates observed during interseasonal periods normally ranged from 4-11/100,000 while rates between 12-24/100,000 were observed during periods of low influenza virus circulation overall. In week 46, the highest rate was observed for children 2-17 years of age (26.6/100,000). Regionally, only the antiviral prescription rates for Ontario and British Columbia have shown a steady increase since early October.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)
In week 46, 3 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. Two cases were reported from AB: one child <5 years of age with A(H3N2), and another 10-6 years of age with unsubtyped influenza A. One case was reported from QC in a child 2-4 years of age with unsubtyped influenza A, admitted to the Intensive Care Unit (ICU).

Since the start of the 2012-13 season, a total of 7 influenza-associated paediatric hospitalizations have been reported by the IMPACT network, all with influenza A. The number of cases by age group is as follows: one <5 years of age, one age 2-4 years, one age 5-9 years, and four 10-16 years. Two of the seven cases (28.6%) were admitted to the ICU.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)
In week 46, 19 laboratory confirmed influenza-associated hospitalizations were reported [ON(11), AB(4), MB(3), NL(1)]. The age breakdown was as follows: one aged between 1-4 years, one between 5-9 years, two between 15-19 years, two between 20-44 years, five 45-64 and eight were aged ≥65 years. Of these 19 influenza hospitalizations, 16 were influenza A [6 A(H3N2), 2 A(H1N1)pdm09, 8 A(unsubtyped)] and three were influenza B. Of the 8 cases with available data, 2 cases were admitted to the Intensive Care Unit (ICU): one case of Influenza A(H3) in a child aged between 5-9 years, and the second in a case of influenza B in an adult aged 45-64 years. There were no deaths.

To date this season, 68 influenza-associated hospitalizations have been reported from four provinces (AB, MB, ON & NL). The majority of cases have been influenza A (95.6%; 65/68). Two thirds of the cases (66.2%; 45/68) were ≥ 65 years of age. Of the 49 influenza A hospitalizations for which subtype was available, 12.2% (6/49) were due to influenza A(H1N1)pdm09 and 87.8% (43/49) were due to A(H3N2). Among the 37 cases with available data, there have been 6 hospitalizations for which admission to ICU was required (from NL and AB). To date this season, one influenza-associated death was reported (week 36) in a hospitalized Influenza A(H3) case who was aged ≥65 years.

Note: The number of influenza-associated hospitalizations reported by the Aggregate Surveillance System may include cases reported by the IMPACT network. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: Countries in the temperate region of the Northern Hemisphere report increasing influenza detections, however none have crossed the thresholds announcing the beginning of their seasons. Tropical areas report circulation of all three sub/types of influenza: most countries in southern and south east Asia (except Cambodia) report decreasing influenza detections; countries in Sub-Saharan Africa report varying levels of activity; and countries in Central and South America report decreasing influenza activity, with some countries in Central America also reporting RSV activity. Countries in the temperate region of the Southern Hemisphere now report influenza activity at inter-seasonal levels, although Chile reported a minor secondary wave of influenza B after a predominantly A(H3N2) season.
World Health Organization influenza update

United States: During week 46, influenza activity increased in the United States. The state of Alaska reported widespread influenza activity, 6 states reported regional influenza activity, and 8 states reported local activity. Several states around the Gulf of Mexico reported increased ILI activity although the overall percentage of patient visits for ILI was below the national baseline at 1.6%. The proportion of tests positive for influenza viruses increased in week 46

(13.2%) compared to the previous week. Of the positive influenza detections reported during week 46, 67.6% were positive for influenza A viruses. Of the 179 influenza A viruses for which subtype information was available, 97.2% were A(H3) and 2.8% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 91 influenza viruses: 41 A/Victoria/361/2011-like; 2 A/California/7/2009-like; 34 B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 14 influenza B belonging to the B/Victoria lineage. One influenza-associated pediatric death was reported in week 46 and was associated with influenza an A(H3) virus.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 46, influenza activity in Europe remained low with co-circulation of all three sub/types, the proportion of positive influenza detections is at the expected level for this time of year. A total of 108 specimens tested positive for influenza in week 46, of which 55.5% were for influenza A viruses. Of the 30 influenza A viruses for which subtype information was available, 53.3% were A(H3) and 46.7% were A(H1N1)pdm09. Since week 40, 440 specimens of influenza viruses have been typed: 63% were influenza A and 37% were influenza B. Among the 165 influenza A specimens for which subtype information was available: 55% were A(H3) and 45% were A(H1N1)pdm09. In general ILI and ARI consultation rates remain low.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza

No cases of human avian influenza A/H5N1 infection have been reported by the WHO since August 10, 2012.
WHO Avian influenza situation updates

Human Swine Influenza

No new human cases of infection with swine influenza viruses or variants were reported this week.

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.